REMARKS

Claims 69-72 and 74-86 are in the case and presented for reconsideration. Claims 69 and 83 have been amended. No new matter has been added.

Claims 69-72 and 74-86 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent 4,821,731 (Martinelli et al.) in view of U.S. Patent 5,558,091 (Acker et al.) and U.S. Patent 5,588,432 (Crowley). With respect to this rejection, the Examiner has stated:

> Martinelli et al. disclose a medical system including a catheter 20 having a distal portion 24 for applying laser energy for ablation, an ECG monitor, and position sensing means for sensing the position of the catheter distal end (see columns 7-10). One means used by Martinelli et al is magnetic means for determining the orientation of the catheter tip. Ultrasound means are used to determine tip position. Acker et al disclose the use of magnetic fields to determine both the position and orientation of a probe tip. It would have been obvious to one skilled in the art to have modified Martinelli et al such that magnetic fields are used to determine both position and orientation as disclosed by Acker et al. Such a modification merely involves the substitution of one known means for determining position for another and reduces the type of system parts by using the same means to perform two functions (both the function of determining position as well as orientation). It is a well known expedient in the art of ablating cardiac tissue to provide electrode means as part of the device in order to map the electrical activity of the heart prior to ablating the tissue. An example of such is taught by Crowley. It would have been obvious to one skilled in the art to have further modified Martinelli et al such that the distal end of the catheter includes means for sensing the electrical signals generated by the heart and the device includes means for mapping the electrical activity of the heart using the sensed signals as taught by Crowly. The advantage of such is to enable the physician to determine where the ablation should be carried out on the heart tissue. With respect to claim 82, Crowley discloses a catheter for image and ablation in the heart that includes a means for steering the catheter to the desired location within the body. It is a well known in the art that positioning a catheter within the heart of a patient requires controlling the catheter by bending or rotating the tip of the catheter. Therefore, it would have been obvious to one skilled in the art to have further modified Martinelli et al such that it includes a means for steering the catheter within the body in order to ensure safe and accurate positioning of the catheter as is well known in the art and taught by Crowley.

Turning now to the present Application, Claim 69 has been amended in order to more particularly point out a system for percutaneous treatment of a patient's heart comprising a catheter having a proximal end and a distal end; an active portion at the distal end of the catheter

for sensing electrical signals generated on the heart and for applying laser energy operable to ablate a portion of the heart; a position sensor responsive to magnetic fields for generating signals for determining position and orientation coordinates of the catheter distal end; and a signal processor for receiving the signals from the position sensor and reconstructing a three-dimensional surface representing a surface of the patient's heart and for generating a map on the three-dimensional surface showing the sensed electrical signals generated by the heart. The support for this Amendment can be found in the Specification, for example, Page 33, Lines 15-34.

Claim 83 has been amended in order to more particularly point out the method of treating a patient's heart comprising the steps of: percutaneously inserting a catheter into a heart of a patient wherein the catheter has a proximal end and a distal end and an active portion at the distal end of the catheter for sensing electrical signals generated on the heart and for applying laser energy as well as a position sensor responsive to magnetic fields for generating location signals; generating magnetic fields and using the position sensor to generate location signals based on the generated magnetic fields; sensing the position of the catheter distal end based on location signals generated by the position sensor for determining position and orientation coordinates of the catheter distal end at a number of places on a surface of the heart by touching the catheter distal end on the surface at each place; using the position sensor to reference the catheter distal end based on the position and orientation coordinates; reconstructing a three-dimensional surface representing the surface of the heart; sensing electrical signals generated by the heart; mapping the electrical activity of the heart on the three-dimensional surface using the sensed electrical signals; positioning the catheter such that its distal end is adjacent tissue of the heart to be treated based on the position and orientation coordinates; and applying laser energy from the active portion to the patient's heart. The support for this Amendment can be found in the Specification, for example, Page 33, Lines 15-34.

The Applicant would like to point out that neither Martinelli, Acker et al., nor Crowley, either alone or in combination with each other describe, suggest or even infer the novel combination of features claimed in Amended Claim 69 and the novel combination of method \

steps claimed in Amended Claim 83. Accordingly, Amended Claim 69 and Amended Claim 83 are neither anticipated by nor rendered obvious by these references. Moreover, since Claims 70-72 and 74-82 depend either directly or indirectly from amended Claim 69, these claims further patentably distinguish the claimed present invention over these references. Additionally, Claims 84-86 depend either directly or indirectly from Amended Claim 83 and further patentably distinguish these claims over these references.

Accordingly, by this Amendment and for the reasons outlined above, the claimed present invention is both patentably distinct and non-obvious over the cited prior art references and favorable action is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is/are captioned "Version with markings to show changes made".

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claim 69. ([Twice] Three Times Amended) A system for percutaneous treatment of a patient's heart, comprising:

a catheter, the catheter having a proximal end and a distal end;

an active portion at the distal end of the catheter for sensing electrical signals generated on the heart and for applying laser energy operable to ablate a portion of the heart;

a position sensor responsive to magnetic fields for generating signals for determining position and orientation coordinates of the catheter distal end; and

a signal processor for receiving the signals from the position sensor and reconstructing a three-dimensional surface representing a surface of the patient's heart and for generating a map on the three-dimensional surface showing the sensed electrical signals generated by the heart.

Claim 83. ([Twice] Three Times Amended) A method of treating a patient's heart comprising the steps of:

(a) percutaneously inserting a catheter into a heart of a patient, the catheter having a proximal end and a distal end, an active portion at the distal end of the catheter for sensing electrical signals generated on the heart and for applying laser energy, and a position sensor responsive to magnetic fields for generating location signals;

(b) generating magnetic fields;

(c) using the position sensor to generate location signals based on the generated magnetic fields;

(d) sensing the position of the catheter distal end based on the location signals generated by the position sensor for determining position and orientation coordinates of the catheter distal end at a number of places on a surface of the heart by touching the catheter distal end on the surface at each place;

(e) using the position sensor to reference the catheter distal end based on the position and orientation coordinates;

(f) reconstructing a three-dimensional surface representing the surface of the heart;

[f] (g) sensing electrical signals generated by the heart;

[g] (h) mapping the electrical activity of the heart on the three-dimensional surface using the sensed electrical signals;

[h] (i) positioning the catheter such that its distal end is adjacent tissue of the heart to be treated based on the position and orientation coordinates; and

[i] (j) applying laser energy from the active portion to the patient's heart tissue.